Module 5 - Steady State Circuits

ME3023 - Measurements in Mechanical Systems

Mechanical Engineering
Tennessee Technological University

Topic 1 - Components, Units, and Symbols

Topic 1 - Components, Units, and Symbols

- Common Passive Components
- Important Electrical Quantities
- Units and Symbols
- —

Common Passive Components

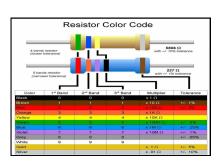
Passive components affect the behavior of a circuit in different ways but they do not generate power and can only absorb energy or transform it into heat. Active components on the other hand...

- Resistor
- Capacitor
- Inductor

Most circuits require an active power source for operation. A voltage source is used in most applications however current sources are also available and are needed for specialized electrical applications.

Common Passive Components

Components are identified by color codes and numbering systems. However it is always a good idea to measure for yourself because a marking can be incorrect or a component may be damaged.



Codes of Ceramic Disc Capacitor www.circuitspedia.com							
	Microfarad	Nanofarad	Picofarad		Microfarad	Nanofarad	Picofarad
CODE	μF	nF	pF	CODE	μF	nF	pF
	0.0047	4.7	4700	100	0.00001	0.01	10
502	0.005	5.0	5000	150	0.000015	0.015	15
	0.056	5.6	5600		0.000022	0.022	22
682	0.0068	6.8	6800	330	0.000033	0.033	33
103	0.01	10	10000	470	0.000047	0.047	47
	0.015	15	15000		0.0001	0.1	100
	0.022	22	22000		0.00012	0.12	120
	0.033	33	33000		0.00013	0.13	130
	0.047	47	47000		0.00015	0.15	150
683	0.068	68	68000	181	0.00018	0.18	180
	0.1	100	100000		0.00022	0.22	220
	0.15	150	150000		0.00033	0.33	330
254	0.2	200	200000		0.00047	0.47	470
	0.22	220	220000		0.00056	0.56	560
334	0.33	330	330000	681	0.00068	0.68	680
	0.47	470	470000		0.00075	0.75	750
684	0.68	680	680000		0.00082	0.82	820
105	1.0	1000	1000000		0.001	1.0	1000
	1.5	1500	1500000		0.0015	1.5	1500
205	2.0	2000	2000000		0.002	2.0	2000
	2.2	2200	2200000		0.0022	2.2	2200
	3.3	3300	3300000		0.0033	3.3	3300

Important Electrical Quantities

```
Charge Coulomb C Voltage Volt V Current Ampere (Amp) i
```

Important Electrical Quantities

Units and Symbols

Units and Symbols

Common Passive Components Important Electrical Quantities Units and Symbols

0